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ABSTRACT

Design of feedback in an online workshop is considered from the perspective of legitimate peripheral participation. A tool for gathering and reporting feedback in an online workshop was developed and tested in the context of ongoing practice. Social and software design issues are considered together. Discussion includes: feedback and online learning from different learning perspectives; description of the case and method; design issues--the software and the social system; the design process; implementation; feedback produced; outcomes and observations; and conclusions and lessons learned. (Contains 14 references.) (Author/AEF)

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E-feedback to Reflect Legitimate Peripheral Participation; Towards a Redefinition of Feedback in Online Learning Environments

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E-feedback to reflect legitimate peripheral participation;
towards a redefinition of feedback in online learning environments

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Abstract

Design of feedback in an online workshop is considered from the perspective of legitimate peripheral participation. A tool for gathering and reporting feedback in an online workshop has evolved and been tested in the context of ongoing practice. Social and software design issues are considered together.

Introduction

Theories of learning can be classified according to whether the underlying metaphor is one of acquisition or of participation (Sfard, 1998). With the introduction of concepts like social construction of knowledge and legitimate peripheral participation (Lave and Wenger, 1991), the participation metaphor has gained legitimacy and richness, suggesting new approaches to the design of e-learning. This paper discusses feedback as an element of design in an e-learning workshop and presents a tool to organize and focus feedback about participation. The design includes social and software components, which have evolved together and are considered together.

The use of the Internet for educational purposes is often assumed to support an acquisition perspective on learning (Brown & Duguid, 2000). But computer-mediated communication (CMC) technologies such as chat rooms, instant messages and others afford entirely new ways of participating in conversations, social networks and communities. Salmon (2000) shows how the development of the competence that participants and e-moderators need (in both technical and social aspects of CMC) is a significant learning task in and of itself. Her model of teaching and learning online through CMC includes both acquisition and participation. An individual's increasing "amount of interactivity," as suggested by the model, moves from early stages ("access and motivation" and "online socialization") to the later stages ("knowledge construction", and "development"). This suggests an increase both in the amount and a shift in the kind of participation toward meaning-making. The design of an online workshop about communities of practice must focus on that shift–by making it visible and making it a subject for extended reflection.

The problem: feedback and online learning from different learning perspectives

In connection with learning, feedback is most often an attempt to assess the performance of a ***teaching*** process: it's the transmission of evaluative or corrective information about an action, event or process to the originating or controlling actor (Wing, 1990) and it's not the learner who is in control. The most common kind of feedback in an acquisition-oriented learning situation is given by the teacher as an assessment of the student, stating whether the material that has been presented has been properly or completely acquired. The notion of legitimate peripheral participation (Lave and Wenger, 1991) suggests that a learner's position as he or she moves toward an emerging center of a community of practice is a reflection of competence. "Position" and "center" are visible to learners in a myriad of social cues. Movement towards the center involves an evolving sense of identity: this is a more complex assessment process than whether acquisition has been completed properly.

Legitimate peripheral participation in online settings is no different than in face-to-face settings, although online communities of practice may form more slowly, some of the

social cues may be harder to detect, and the expression of identity may take different forms. But these differences are magnified when the learning process takes place in a time-delimited episode such as a workshop. A community of practice perspective should influence the design of feedback to and from the learner as much as possible.

Online workshops designed as a community of practice suggest that feedback be reconceived from the perspective of the participant. In agreement with Putz and Arnold (2001, 194) we would argue that the design of such a workshop never completely determines the learning practices. The participants make use of the learning space offered by the workshop and co-create their learning through (constant) interactions with each other. Our design of a Community Barometer offered workshop participants opportunities to reflect on their interactions with each other, with "the content," and on their experience of the process itself.

When the subject of the workshop is "communities of practice," the importance of carefully designing the feedback increases. This project has taken an action research approach by reflecting on theoretical issues and, at the same time, reporting on the evolution of a tool that was used in just such an online workshop. The challenge has been to design a feedback tool that helps workshop participants learn–and gain insights into the general process of learning in a community setting. This implies that feedback is *"feedback to the community"* rather than to an authority figure. It's simultaneously *"feedback about the community"* and, significantly, *"feedback from the community."* Figure 1 suggests how the Community Barometer and the discussions around it can be the center of a reflective process.

Figure 1: Conceptual model of Community Barometer use

This approach has further implications for software design as a support for social arrangements among workshop participants. As the design of the social process has evolved, the software to capture and represent the experience has had to evolve as well. Situating information capture and representation in the workshop space then becomes an important design problem.

Case description

Our feedback tool was developed in the context of an online workshop in which readings about communities of practice were discussed and in which a community of practice was simulated. Although the workshop involved teleconferences, email messages, and side conversations in various media, the main "space" where the workshop met was a customized conferencing site on a Web Crossing platform. As the design and delivery of the workshop have evolved over 4 years and 10 offerings, many elements have been introduced to help workshop participants visualize their own participation in relation to that of others. These examples of visible participation are illustrative:

- The foundation for the workshop was the online conversation over the course of five weeks. It offered several different kinds of conversations, playful and formal, all designed to encourage participation and reflection on participation. These different spaces are in effect "a curriculum," representing different facets of a community's life. Each offers a different kind of interaction and embeds different feedback characteristics.

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- A "Community Directory" supports "back-channel" participation by providing each participant's name, thumbnail photograph and contact information such as telephone number, organization, and email address. In addition, it calculated a participant's local time and length of time since last login.
- The customized workshop platform provided a readily available instant messaging facility and a way to see who is "present" on the website. The list of people who are present linked to an instant message tool, which provided a much-used resource for chit-chat and feedback of various sorts.
- Workshop participants were asked to take on specific leadership tasks and roles that supported the activities and learning of the workshop community. These tasks were a version of stewardship roles described in Wenger (2000). Participants read brief descriptions of what these "leadership tasks" entailed, signed up for them at the beginning of the workshop, and then were coached by one of the facilitators as they carried out their duties. Each of the tasks involved reflection on community needs, trajectory, and general attitude. Participants signed up for leadership tasks as teams–with other members of small groups to which they were assigned at the beginning of the workshop.

There were many other ways in which both the design and production of this workshop emphasized participation and social learning processes. Feedback was woven into the design and production on many different levels. It began with the first contact before the participant had actually registered and continued through follow-up contacts after the end of the workshop.

Method

This paper uses an action research framework, since the authors were participants in the workshop, playing several different roles at different points in time (Baskerville, 1999). In this stage of the research Grounded Theory coding has not been used. Each iteration of the research process consists of five phases: diagnosis, action planning, action taking, evaluation and specific learning. Although work in this area began earlier, this paper focuses on the workshop offerings in Fall 2001, Winter and Spring of 2002.

Design issues: the software and the social system

The main issues regarding the design of feedback in this workshop are:

- The workshop was quite short (5 weeks) and the learning curve was rather steep in the sense that many participants were struggling to understand the readings that were being discussed as they were confronting a complex CMC environment for the first time.
- Voluntary participation served as a test of relevance. Most participants in the workshop had full-time jobs and had underestimated the amount of time that participation in an online workshop entailed. The voluntary aspect of discussions and tasks were as important in this workshop as they would be in any community of practice: attention acted as a built-in relevancy test and was an element of community rigor. Attention, therefore, is a fundamental kind of feedback.
- The workshop was co-produced with the participants. Workshop participants were asked to carry out tasks that illustrated community leadership roles that normally emerge over much longer periods of time (Wenger, 2000). Some of these roles (such as organizing and facilitating teleconferences) were relatively intuitive and familiar to the participants. Others (such as some of the reflective tasks) seemed more difficult for participants to conceptualize and execute. There was a natural tension between allowing participants to shape their own roles and insuring that the work of the simulated community actually got done. The very notion of a community of practice

suggests that too much facilitation (or facilitation that is too directive) can undermine the self-organizing capacity, even of a simulated community such as this workshop.

- Although the workshop was artificial in some ways, the relationships and the learning that occurred during the workshop were real. Participants were invited to reflect on the process of community formation and the related learning issues.

All of these design issues served as a kind of diagnosis: the feedback process needed to be somewhat formalized, the process needed to engage the attention of workshop participants voluntarily, and their attention needed to be drawn to issues at a community level. The focus of the feedback needed to be on the community development process, but the feedback process itself could not be too directive or depend too much on the intervention of the workshop leaders.

Design process

The online questionnaire that has developed addressed the foregoing issues and was used in the Fall 2001, Winter 2002 and Spring 2002 workshops. The process of design evolution is expected to continue.

Originally the Community Barometer was conceived from a spatial perspective (Coenders 2002). The questions were suggested by a spatial metaphor whose logic was roughly: an online "space" accommodates activity, interaction and insights that enable learning. The "amount" of space and the functioning of the space may have a significant effect on enabling a workshop's outcomes. Space in this view is a mix of virtual, mental and interpersonal space and is compatible with the concept of "Ba" as introduced by Nonaka. This led to a survey that combined closed-form questions and open-ended responses. It was used experimentally as a participant mini-project in the Spring 2001 workshop and subsequently evolved into the Community Barometer.

As a result of the first trial, the questions were re-organized, the questionnaire was automated and the administration of the questionnaire was incorporated into the Fall 2001 workshop. The questions which had been developed independently were found to fall nicely into the model that Wenger (1998) had developed for a community of practice. The Web Crossing platform provided good facilities for storing information such as questionnaire responses in the user record and its programming languages enabled the automatic aggregation and reporting of stored data. Through a connection between the Community Barometer questionnaire and a discussion titled "Reflecting on our experience," workshop participants were brought indirectly into the feedback design process.

Implementation

The Community Barometer questionnaire added two forms of feedback to the discussion: closed-form responses and open-ended questions. The closed form component asked participants to rate the extent to which they experienced the workshop community as:

Domain	1. Discussing the right topics
	2. Sharing perspectives and ways of thinking
	3. Finding new concepts and frameworks
Community	4. Being together with each other
	5. Developing enough trust for deep discussion
Practice	6. Building collaborative relationships
	7. Participating in setting direction and tone
	8. Evolving communication practices along the way
	9. Working towards useful outcomes

The open-ended response component of the questionnaire asked respondents to give a brief example to illustrate their experience of the closed-form question. A screen-shot of the questionnaire is shown in Figure 2. Workshop participants could change their responses at

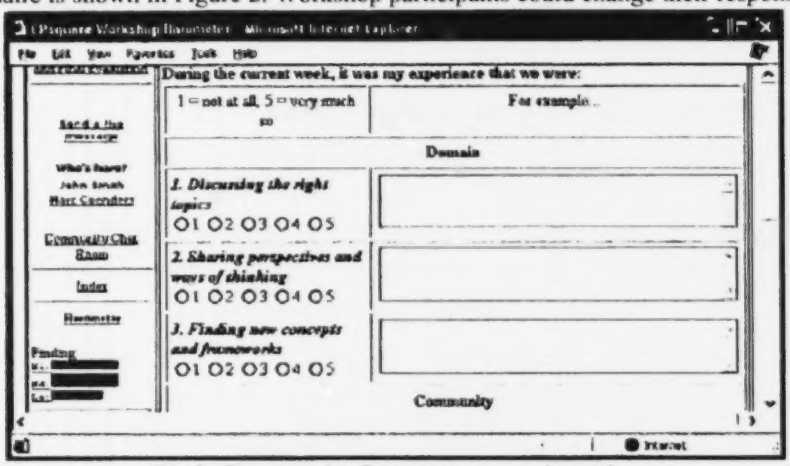
During the current week, it was my experience that we were:
1 = not at all, 5 = very much so
For example...
Domain
1. Discussing the right topics
O1 O2 O3 O4 O5
2. Sharing perspectives and ways of thinking
O1 O2 O3 O4 O5
3. Finding new concepts and frameworks
O1 O2 O3 O4 O5
Community

Fig 2: Community Barometer questionnaire

any time during a week. Notice that the Community Barometer questionnaire page, like all others in the workshop, had a navigation bar along the left which provided access to several different resources, including the Barometer questionnaire and the Barometer results summary page. The bar chart in the lower left hand corner of Figure 2 represented the median and quartiles of one question and was a link to that section of the Barometer results summary report. Which question was represented, as well as where in the summary report the link takes you, depends on the location in the workshop. For example the Domain questions pictured in Figure 2 were associated with formal discussion spaces in the workshop while questions associated with the concept of community were associate d more informal and playful spaces.

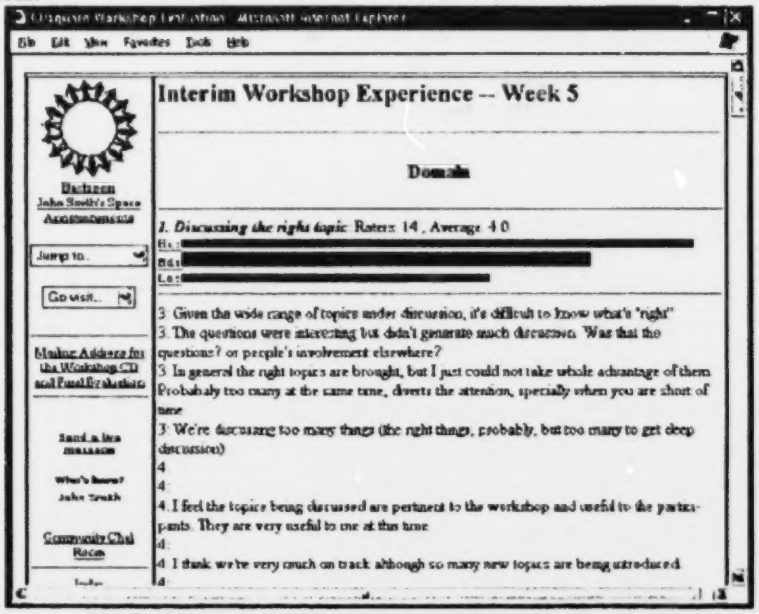
Interim Workshop Experience -- Week 5
Domain
1. Discussing the right topic: Raters: 14, Average: 4.0
3. Given the wide range of topics under discussion, it's difficult to know what's "right"
3. The questions were interesting but didn't generate much discussion. Was that the questions? or people's involvement elsewhere?
3. In general the right topics are brought, but I just could not take whole advantage of them. Probably too many at the same time, diverts the attention, specially when you are short of time
3. We're discussing too many things (the right things, probably, but too many to get deep discussion)
4
4
4. I feel the topics being discussed are pertinent to the workshop and useful to the participants. They are very useful to me at this time
4
4. I think we're very much on track although so many new topics are being introduced
4

Fig 3: Community Barometer results summary page

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All workshop participants were able to see an anonymized summary report of all responses at any point. As shown in Figure 3, the summary report grouped the open-ended comments by the corresponding closed-form score. Therefore, for each of the nine questions, the open-ended responses at a given point on the scale from one to five were shown together. Since the questionnaire and the results summary changed each week, the responses and the summaries pertained to a specific week. During the course of the workshop, the summary reports from the preceding weeks were available, permitting comparisons from one week to another. The responses illustrated in Figure 3 represent the lower end of a symmetrical distribution that ranges from 3 ("neutral opinion on whether the right topic is being discussed") to 5 ("strongly agree").

There were two ways in which the Community Barometer was woven into the social fabric of the workshop community. The first was to tie it closely to an ongoing discussion titled "Reflecting on our experience." The navigation bar on every page in the workshop website linked directly to both the Barometer questionnaire and to the summary report. These in turn linked directly to the "Reflecting on our experience" discussion. Although many discussions in the workshop were time-bound (e.g., the "Welcome to the workshop" discussion was only active at the very beginning), "Reflecting on our experience" was an ongoing discussion that went on for the duration of the entire workshop.

The second way was to have the leadership team facilitate the "Reflecting on our experience" discussion. This team explicitly signed up to consider the development of the sense of community, to encourage participation in the reflection process, and to interpret the Barometer summary report. The team facilitating the community-wide discussion typically held small-group discussions in their own personal space about the facilitation task, about the Community Barometer, or about the reflective process in general. The team's personal space was open to others but was infrequently visited by people not on the Barometer team.

Feedback produced

The following feedback was produced by the Community Barometer:

- The number of responses, the average, median, upper- and lower-quartiles were calculated and provided in appropriate locations, shown as numbers and represented graphically. (See Figures 2 and 3.)
- Each participant could see how his or her scores compared to the group statistics.
- The comments of each participant on each question were shown anonymously in the Barometer summary report.
- Each participant could see how his or her comments compared to those of others.
- Cumulative data was not automatically displayed but was made available to the Barometer facilitation team, which, in some workshops, published week-to-week comparisons.

Outcomes & observations

The Community Barometer was used in three workshops, during the Fall of 2001, the Winter of 2002, and the Spring of 2002. The following observations were made during these workshops:

- Most workshop participants completed the questionnaire and many offered rich and insightful comments about their perceptions of and reactions to the workshop experience. The percentage of workshop participants completing the questionnaire declined over the course of each workshop. Less than half of the completed questionnaires contained open text "examples."

- Support and guidance for the leadership team that volunteered to work with the Community Barometer turned out to be crucial. Just as the software implementing the Barometer questionnaire and summary report evolved through experimentation, the instructions to the leadership team evolved as the meaning of the task was negotiated, as different team members offered new skills and perspectives, and as the workshop leaders gained experience in the process. For example, because of the amount of work entailed by this leadership task in the Fall of 2001, three different teams were recruited in the Spring of 2002, one team for each of the active weeks. The effort involved in understanding the task and stepping into the leadership role was such that in the Spring of 2002 we reverted to the simpler but more onerous design where one team took on the task for the duration of the workshop.
- Messages from the leadership team inviting participants to complete the Community Barometer or to join the discussion "Reflecting on our experience" were effective and fit into the self-organizing spirit of the workshop.
- Although the Community Barometer summary did come up in the discussions on "Reflecting on our experience", it was not necessarily the center of the discussion: the Community Barometer could be ignored as such even though the discussion (about, for example, the appropriate length of postings) touched on issues that were also mentioned in the Community Barometer summary report.
- Workshop facilitators referred to the Community Barometer summary report and found that it reflected events, concerns and emerging topics. Although it did not provide easy answers, obvious "fixes" or suggest course corrections, it was a useful resource.
- The comments in the Community Barometer and in the discussion "Reflecting on our experience" were fairly divergent. Careful attention and skill on the part of the leadership team was needed to keep the discussions focused and productive.

Conclusions and discussion of what we've learned

The reflection which we have encouraged in the workshop is an unpredictable process in the sense that it is multi-layered, is only partly visible and it interacts with all of the other online activities. The same can be said for the process of writing this paper. Here are several issues that rise to the surface in reflection on the development process as a whole.

- The Community Barometer should be regarded as a social "affordance" (Norman, 1988 and Norman 1993) in the workshop community's life. The way it appears to the community suggests meaningful improvisation and additional uses. Its actual use is a combination of many factors, ranging from its mechanical design, its wording, its placement and availability, the leadership of a team of volunteers and the coaching they receive. The community's response is quite complex and changes over time.
- It is worth speculating whether synoptic community awareness is too lofty a goal for a barometer in a fast-paced online workshop; a more modest goal that a tool (and associated practices) might aim for is something like proprioception, in the sense that different actors in a community sense the amount of "stretch" or effort that's appropriate for their function.
- Designing feedback for an emergent entity–a community that doesn't exist at the beginning of the workshop, but which is in the process of forming– involves some subtle paradoxes. Distinguishing between assumptions, intuitions, and evidence in a fast-paced online environment is a challenge both for workshop leaders, the designers, as well as the participants.
- The temptation to assess the assessment tool with a questionnaire was strong. Resisting the temptation seems, in retrospect, to be very much in the spirit of learning

suggested by Lave and Wenger (1991) and Wenger (1998). Ongoing reflection and discussion by the participants in a workshop seems to be a productive strategy for the development and assessment of a tool. That belief has general implications for the development of software tools.

- Using the barometer questions, software, and practices in other settings would nevertheless be productive.

Just as a common barometer indicates a possible change in weather conditions, the Community Barometer described in this paper provides evidence of community conditions– that community members must interpret with care. It captures and presents subjective experiences and as such supports an intersubjective reflection and negotiation process. As weather fluctuates within a dynamic range of equilibria, a community fluctuates along three dimensions: community, practice and domain. The Community Barometer aims to indicate some fluctuations so people are alerted to areas and issues that deserve attention. The Community Barometer is a way to prepare participants for the sunny and rainy days of community life!

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